Remarks

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter.

In response to this rejection, applicant has canceled claims 1-18 and added new claims 19-37, and submits herewith a Substitute Specification to replace the original specification since the original specification was submitted in error. It is noted that the drawings are still correct.

To establish eligibility/legitimacy of the substitute specification, Applicant submits herewith an English translation to the original prior foreign application specification/drawings which was submitted in the initial filing. Thus, Applicant asserts that new claims 19-37 and the Substitute Specification have been supportably disclosed in the drawings and the prior foreign application specification/drawings, i.e., the foreign certified copy on which the priority was claimed, originally filed at the Office on the filing date. Therefore, there is no new matter entered.

Therefore, Applicant submits that the Substitute Specification provides proper antecedent basis for new claims 19-37. The objection is believed to be overcome, and withdrawal of the objection is respectfully requested.

Double Patenting

Claims 1-18 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-18 of copending Application No. 10/810,151 (US 2004/0192152).

In response to this rejection, applicant has canceled claims 1-18 and added new claims 19-37 (see above). There is no new matter entered. Applicant asserts that the subject matter of new claims 19-37 is patentably different from the subject matter of claims 1-18 of copending Application No. 10/810,151. Therefore, the rejection is believed to be overcome, and withdrawal of the rejection is respectfully requested.

Applicant apologies for any inconvenience or confusion in the instant application caused by applicant's wrong submission of the original specification which is same as that of the aforementioned copending application 10/810,151. Anyhow, the substitute specification submitted therewith can efficiently cure such problems.

In view of the above-described specification and claim amendments and remarks, the subject application is believed to be in a condition for allowance, and an action to such effect is earnestly solicited.

Respectfully submitted,
Liang Liu et al.

By _____
Wei-Te Chung

Registration No.: 43,325
Foxconn International, Inc.
P.O. Address: 1650 Memorex Drive, Santa Clara, CA 95050
Tel. No.: (408) 919-6137

Translator's Statement

I Wei-Te Chung, a registered patent agent before the US Patent and Trademark Office (registration number: 43,325) who haves proficient knowledge of both English and Chinese, state that the translation of the priority document of CN Patent Application Case No. 03114064.5 is accurate to its original language.

Translator: (Wei-Te Chung)

Date: Jan 4, 06

Translation of CN Patent Application Case No. 03114064.5

Title

Method For Making A Field Emission Display

Abstract of the Invention

The present invention provides a method for making a field emission display. The method comprises the following steps: (1) providing a substrate; (2) depositing gate electrodes on the substrate corresponding to predetermined display pixels; (3) forming an insulating intermediate film on the gate electrodes; (4) depositing a catalyst layer on the insulating intermediate film; (5) forming an insulation layer on the catalyst layer, thereby defining spaces corresponding to the predetermined display pixels; (6) growing carbon nanotube arrays by chemical vapor deposition on the catalyst layer within the spaces defined by the insulation layer; (7) depositing cathode electrodes on the carbon nanotube arrays; (8) encapsulating the cathode plate and removing the substrate; (9) removing the insulation layer by a wet etching process; (10) packaging the cathode plate with a display screen including the anode electrodes.

Claims:

1. A method for fabricating a field emission display comprises the following steps:
   (1) providing a substrate;
   (2) depositing gate electrodes on the substrate corresponding to predetermined display pixels;
   (3) forming an insulating intermediate film on the gate electrodes;
   (4) depositing a catalyst layer on the insulating intermediate film;
   (5) forming an insulation layer on the catalyst layer, thereby defining spaces corresponding to the predetermined display pixels;
   (6) growing carbon nanotube arrays by chemical vapor deposition on the catalyst layer within the spaces defined by the insulation layer;
   (7) depositing cathode electrodes on the carbon nanotube arrays;
   (8) encapsulating the cathode plate and removing the substrate;
   (9) removing the insulation layer corresponding to the display pixels by a wet etching process;
   (10)packaging the cathode plate with a display screen including the anode electrodes.
2. The method for fabricating a field emission display of claim 1, characterized in that a protective layer of the gate electrodes is deposited on said substrate between steps (1) and (2).
3. The method for fabricating a field emission display of claim 2, characterized in that the thickness of the protective layer of the gate electrodes is in the range of 1μm–100μm.
4. The method for fabricating a field emission display of claim 2, characterized in that the manufacturing material of said protective layer of the gate electrodes is selected from the group consisting of: glass, metal coated with an insulation layer, silicon, silicon oxide, ceramic material and mica.
5. The method for fabricating a field emission display of claim 1, characterized in that a silicon protective layer is deposited on said insulating intermediate film between steps (3) and (4), and that said catalyst layer of step (4) is deposited on the silicon protective layer.
6. The method for fabricating a field emission display of claim 1, characterized in that the thickness of the insulating intermediate film is in

the range of 1μm~1000μm.

7. The method for fabricating a field emission display of claim 6, characterized in that the thickness of said insulating intermediate film is in the range of 10μm~200μm.
8. The method for fabricating a field emission display of claim 1, characterized in that the manufacturing material of said insulating intermediate film is selected from the group consisting of: glass, metal coated with an insulation layer, silicon, silicon oxide, ceramic material and mica.
9. The method for fabricating a field emission display of claim 5, characterized in that the thickness of said silicon protective layer is in the range of 10nm~1000nm.
10. The method for fabricating a field emission display of claim 5, characterized in that portions of said protective layer corresponding to the display pixels are removed by dry etching between steps (9) and (10).
11. The method for fabricating a field emission display of claim 1, characterized in that the manufacturing material of said insulation layer is selected from the group consisting of: glass, metal coated with an insulation layer, silicon, silicon oxide, ceramic material and mica.
12. The method for fabricating a field emission display of claim 1, characterized in that the thickness of said insulation layer is in the range of 1μm~10mm.
13. The method for fabricating a field emission display of claim 12, characterized in that the thickness of said insulation layer is in the range of 10μm~500μm.
14. The method for fabricating a field emission display of claim 1, characterized in that a layer of negative feedback resistance is deposited on the carbon nanotube arrays first and then cathode electrodes are deposited on the layer of negative feedback resistance in step (7).
15. The method for fabricating a field emission display of claim 14, characterized in that the manufacturing material of the layer of negative feedback resistance is selected from the group consisting of silicon and alloy.
16. The method for fabricating a field emission display of claim 1, characterized in that the thickness of said catalyst layer is in the range of 1nm~10nm.

17. The method for fabricating a field emission display of claim 16, characterized in that the thickness of said catalyst layer is 5nm.
18. The method for fabricating a field emission display of claim 1, characterized in that the catalyst layer corresponding to the display pixels is further removed by laser between steps (9) and (10).